The Relationships between Self-esteem, Binge Drinking and Sexual Risk Behaviors among Young Women

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Abstract

Sexually transmitted infections (STIs) are a growing problem nationwide, according to the Centers for Disease Control and Prevention (2009), there are approximately 19 million new STIs each year, and almost half are among young people ages 15 to 24. Untreated STIs are estimated to cause at least 24,000 women to become infertile each year (CDC). Students with low self-esteem, consumed more alcohol, had more sexual partners, and had more HIV risk-taking behaviors than other students (Gullette & Lyons, 2006). What is not clear from the literature is how psychological variables affect risk behaviors in a nationally representative sample. The purpose of this study was to evaluate the relationship between self-esteem, alcohol use, and sexual risk behaviors. Methods: This is a secondary analysis of data from The National Longitudinal Study of Adolescent Health (Add Health) database, which is a longitudinal study of a nationally representative sample of adolescents. The Add Health cohort has been followed into young adulthood with four in-home interviews, most recently in 2008, when the samples were aged 24-32, just emerging into adulthood and more likely to have opportunities for drinking and sexual behaviors. Wave III data for females was used (N = 2629). Analysis: Pearson bi-variate and Spearman Rank correlations were conducted for variables of interest. Linear regression analysis was used to examine the relationship between the sexual risk behaviors, alcohol use and self-esteem. A p-value less than .05 was considered statistically significant. Results: Education was not related to binge drinking or self-esteem. Higher levels of self-esteem were related to higher levels of binge drinking. Sexual risk behaviors were related to self-esteem. Unlike previous studies, binge drinking was not related to sexual risk behaviors. Implications: These results will aid in the development and implementation of gender-specific interventions aimed at impacting sexual risk behavior among women.

Introduction

According to the CDC (2009), there are approximately 19 million new STD infections each year, and almost half of them are among young people 15 to 24 years of age. According to the CDC, the cost of STDs to the U.S. health care system is estimated to be as much as $15.9 billion each year. Untreated STDs can lead to serious long-term health consequences, especially for women. If left untreated, 10 to 20 percent of chlamydia and gonorrhea infections in women can result in pelvic inflammatory disease, a condition that can cause long-term complications such as chronic pelvic pain, ectopic pregnancy, and infertility. According to the CDC, untreated STDs are estimated to cause at least 24,000 women to become infertile each year. To decrease the incidence of STIs and their negative consequences studies must be done to find the correlates and causes of sexual risk behaviors that can lead to STIs. "High sexual risk" includes behaviors such as not used a condom during the last time they had sexual intercourse and/or had more than one sexual partner during their lifetime. These definitions are based on indicators suggested by researchers (Huebner & Howell, 2003). This operationalization takes into consideration the fact that consistent condom use decreases the incidence of sexually transmitted diseases and that increased numbers of partners are associated with increased risk of sexually transmitted diseases (Huebner & Howell, 2003). The sociocultural issues of high rates of alcohol use and sexual activity, commonly found on college campuses, also impact other areas of student health, such as sexual assault, sexual disease, pregnancy, and emotional or psychological impact (Benson, Gohm, & Gross, 2007)

Binge Drinking

There are studies regarding the incidence of binge drinking. Binge drinking is defined as three or more drinks in a sitting (Gullette & Lyons, 2006). National surveys show that about 6

out of every 10 women of child-bearing age (i.e., 18–44 years) use alcohol, and slightly less than one-third of women who drink alcohol in this age group binge drink (National Center for Health Statistics, 2008) Over one third of college women binge drink, they consume four or more drinks per occasion, and 17% do so three or more times during a period of 2 weeks (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). According to Brown and Vanable (2007), approximately 42% of college aged students engage in binge drinking

The relationship between binge drinking and sexual behaviors has been studied in previous research. Gullette and Lyons (2006) found that women who binge drink are more likely to have unprotected sex and multiple sex partners. For sexual encounters involving a non-steady partner, alcohol consumption was associated with an increase in unprotected vaginal sex, whereas rates of unprotected vaginal sex did not vary by drinking status for encounters involving a steady partner (Brown & Vanable, 2007). It has been reported that more than 100,000 students between the ages of 18 and 24 had unprotected sex while intoxicated with alcohol (Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002). However, Brown and Vanable (2007), found as many as 400,000 college students have unprotected sex after drinking each year. Individuals who have consumed alcohol (at any point) being more likely to have had sex (Cooper, 2002). The extent of an individual's drinking behavior has been used to predict the extent of their sexual activity (Abbey, Saenz, & Buck, 2005). Drinking alcohol prior to a dating situation has been shown to increase chances of sexual intercourse, whereas drinking before sexual intercourse has been related to indiscriminate sexual partner choice and absence of talks about potential disease and pregnancy (Cooper, 2002).

Self-Esteem

Another variable related to risk behaviors is self-esteem. Studies have been done to look at the relationships between self-esteem and risk behaviors. Self-esteem is a subjective appraisal of self and reflects how an individual perceives themselves to be worthy or able (Anderson & Polmhausen,1999).Students with low self-esteem consumed more alcohol, had more sexual partners, and had more HIV risk-taking behaviors than other students (Gullete & Lyons, 2006). Benjamin and Wulfert (2006) found the association of concurrency with nonmonogamous sexual partners and substance use suggests the existence of extensive sexual networks that link people at higher risk for HIV infection with increased opportunities for disseminating infection (source). Associations between low self-esteem and heavy drinking in college women have also been demonstrated in various studies (Benjamin & Wulfert, 2005).

Studies have been done to look at the relationships between self-esteem and risk behaviors. Self-esteem is a subjective appraisal of self and reflects how an individual perceives themselves to be worthy or able (Anderson & Polmhausen, 1999). Studies have been done to look at the relationships between self-esteem and risk behaviors. A factor that may be instrumental in an individual's willingness to engage in risk-taking behaviors is related to self-esteem (D'Zurilla, Chang, & Sanna, 2003). Students with low self-esteem consumed more alcohol, had more sexual partners, and had more HIV risk-taking behaviors than other students (Benjamin & Wulfert, 2005). Benjamin and Wulfert (2006) found the association of concurrency with nonmonogamous sexual partners and substance use suggests the existence of extensive sexual networks that link people at higher risk for HIV infection with increased opportunities for disseminating infection. Several studies have shown that women who engage in risky sex had more negative attitudes toward using condoms, possessed lower self-esteem, and used more

illegal drugs than women with higher self-esteems (D'Zurilla et al., 2003; Sterk, Klein, & Elifson, 2004). A study of protective factors against substance use and sexual risk taking was conducted among high-poverty urban youth. Higher levels of self-esteem were associated with lower levels of risk behaviors (Peterson, Buser, & Westburg 2010).

Associations between low self-esteem and heavy drinking in college women have also been demonstrated in various studies (Benjamin & Wulfert, 2005; Neuman et al., 2009; Tubman, Wagner, & Langer, 2003). A study by Neumann et al (2009), with three hundred-and-four alcohol-using college students read an NIAAA sponsored message regarding the risks associated with alcohol use. Results revealed that self-esteem and gender significantly and independently predicted alcohol-related attitudes, intentions, and follow-up behavior. Females, especially those with low self-esteem, demonstrated greater alcohol-related concerns immediately after reading the message, while males exhibited more self-serving attitudes. In addition, high self esteem participants and males reported fewer intentions to reduce drinking behavior. At follow-up, higher self-esteem was associated with greater drinking frequency relative to lower self-esteem. These results indicate that those with high self esteem may not respond to information regarding alcohol. In a study by Tubman, Wagner, and Langer (2003) adolescents with substance use problems were classified into four distinct and meaningful subgroups based on patterns of depressive symptoms and motives for drinking before sex. Groups with higher and lower functioning were identified by assessing psychological distress, alcohol use behaviors, and HIV-relevant risk behaviors. These analyses identified adolescents with high levels of depressive symptoms and drinking motives who are at elevated risk for HIV/STD exposure due to higher levels of risky sexual behavior and altered sexual behavior related to co-occurring alcohol use.

For this study the independent variables were binge drinking, self-esteem and education. The dependent variable was sexual risk behaviors. Although previous research has extensively looked at self-esteem, binge drinking and sexual risk there has not been much focus on education level and its relationship. There is not much information about education related to the variables being studied. This study aims at finding how education level correlates with the other variables. Also, this study looks at a large nationally representative sample which is different than most other studies.

Methods

Design

This correlational study was conducted by secondary data analysis using the female sub-sample of the Longitudinal Study of Adolescent Health (Add Health) database, which is a nationally representative sample. For this study, a cross-sectional analysis of Wave III public-released core home data was completed. The Cross-sectional Wave III weights, provided by the dataset Principal Investigator, were applied. Wave III data collection is described below.

Sample

For this non-probability survey, an in school self-administered questionnaire was given to students in grades 7 to 12 from September 1994 through April 1995, during a class period. This questionnaire was completed by more than 90,000 adolescents and measured family and peer relationships; academic, sport and student organizational activities; and a variety of adolescent risk behaviors, including sexual activity and sexually-related behaviors. All students who completed the in school questionnaire, as well as those who were listed in the school roster, were

used as a sampling frame to select a random sample of 12,105 adolescent, stratified by gender and grade, and were later interviewed in their homes.

During the in-home interviews, respondents read questions and recorded responses on a computer. Trained interviewers were present to answer any questions. Approximately 17 students were chosen from each stratum so that approximately 200 adolescents were selected from each of the 80 pairs of schools. This sample is called the "core sample" (Dittus & Jaccard, 2000). In addition, there were several special over-samples. These included 334 Chinese adolescents, 450 Cuban adolescents, and 437 Puerto Rican adolescents (Dittus & Jaccard, 2000). Sampling was repeated in 2001 for the Wave III data cycle. The Add health data are available in two forms: public use and contractual release. The un-weighted sample of the current study consisted of 2629 young women. For the present cross-sectional analysis, the Wave III core in-home sample of females included in the public-release data was used.

Data from Wave III allows for diverse analyses across a spectrum of social, economic, and health-related behaviors. The in-home Wave III sample consists of Wave I respondents who could be located and re-interviewed during the field-work period, August 2001 to April 2002, when they were between 18 and 27 years old. Wave I respondents who were out of the country were omitted from Wave III. Every effort was made to re-interview respondents who were located in correctional facilities. Data collection was conducted nationwide (including Hawaii and Alaska). The sections I will use in the wave III questionnaire are: Sexual Experiences and STDs and Tobacco, Alcohol, Drugs, and Self-esteem. The risky sexual behavior scale is the dependent variable. The independent variables are educational level, self esteem and binge drinking. The sample size for this study was 2629 women.

Measures

In order to examine the major study variables the following measures were used from the database:

Self-esteem. A 3-item summative scale of self-esteem was created using the following items: have many good qualities, like myself the way I am, feel like I am doing things just about right. The self-esteem scale internal consistency coefficient was α=0.702. The scale was coded such that a higher score was indicative of a higher level of self-esteem in the respondent.

Binge Drinking. Binge drinking was defined by a single item variable specified as "number of times having 4 or more drinks on a single occasion in the past 2 weeks." Respondents self-reported the number ranging from 0 – 14 occasions.

Sexual Risk Behaviors. Sexual risk behaviors were defined by the following variables: age first time vaginal intercourse, number of vaginal intercourse partners, number of different vaginal intercourse partners past 12 months, any vaginal intercourse partners have STD past 12 months, number of times vaginal intercourse past 12 months, birth control at intercourse past 12 months, birth control at intercourse past 12 months, condom at vaginal intercourse past 12 months, most recent vaginal intercourse use condom. Each item was analyzed separately with other variables of interest as well as scaled and analyzed with other variables of interest.

Data Analysis

Descriptive analysis including mean, median, mode, range and standard deviation, were conducted for all variables of interest. To answer the research questions, data were analyzed using either Pearson's or Spearman's Rank correlations. Pearson bi-variate correlations were

conducted with normally distributed measures. Spearman Rank correlations were conducted for non-parametric measures such as those that were dichotomized. A p-value less than .05 was considered statistically significant.

Results

See Table 1 for the sample demographic overview. The sample mean age = 21.71 (*SD*=1.8). Most women were Caucasian (58.3%); 29.1% Black, 7.6% Native American, and 5.1% Asian/Pacific Islander. The highest level of education for majority of the women was a high school diploma (83.3), 6.8% had a GED, 8.8% associate's degree, 12.7% bachelor's degree, and 0.4% master's or professional degree. Of this sample 39.3% are currently attending school, with 78.6% attending full time and 21.4% going part time. Most of the women attending school are at a four-year college (58.2%), 1.0% in high school, 31.8% two-year college, 9.0% graduate school. The remaining results are presented by research question.

Is educational level related to binge drinking? The correlation between highest level of education and number of times having 4 or more drinks on a single occasion was not statistically significant (r= -.022, p=.357). The lower level of education is associated with greater incidence of binge drinking. This shows that education was not related to binge drinking.

Is educational level related to sexual risk behaviors? Sexual risk behaviors when scaled was not related to education level (r=.003, p=.889). Each item for sexual risk was also analyzed. The following were statistically significant: age first time vaginal intercourse (r= .296, p= .000); number birth control at intercourse past 12 month (r=.255, p=.000); condom at vaginal intercourse in past 12 months (r=0.75, p=.001); most recent vaginal intercourse using birth control (r=.192, p=.000); and most recent vaginal intercourse use condom (r=.073, p= .001). The

following sexual risk behaviors were not statistically significant: number of vaginal intercourse partners (r= -.050, p= 0.19); number of different vaginal intercourse partners (r= -.002, p= .929), number of different vaginal intercourse partners past 12 months (r= -.027, p= .230); and any vaginal intercourse partners have STD past 12 months (r= -.023, p= .305).

Is self-esteem related to binge drinking? The 3-item self-esteem scale had a mean of 5.61 (SD=1.806). There is a statistically significant positive correlation (r= .076. p=.001), showing that the higher the level of self-esteem the greater incidence of binge drinking.

Is self-esteem related to sexual risk behaviors? Self-esteem and sexual risk behaviors had a statistically significant positive correlation (r=.053, p=.012). Each individual sexual risk behavior was analyzed separately. The following were statistically significant: age first time vaginal intercourse (r =-.069, p=.001); the number of vaginal intercourse partners (r=.087, p=.000); number of different vaginal intercourse partners past 12 months (r=.062, p=.003); birth control at intercourse past 12 months (r=-.069, p=.002); condom at vaginal intercourse past 12 months (r=-.079, p=.000,); most recent vaginal intercourse use birth control (r=-.081, p=.000); and most recent vaginal intercourse use condom (r=-.098, p=.000). Self-esteem and having any vaginal intercourse partners with an STD in the past 12 months in positively correlated but not statistically significant (r= .027, p=.224).

Is binge drinking related to sexual risk behaviors? The relationship between self-esteem and binge drinking was statistically insignificant (r=0.47, p=0.58). The following sexual risk variables were statistically significant in relation to binge drinking: number of vaginal intercourse partners (r=.175, p=.000); number of different vaginal intercourse partners past 12 months (r=.234, p=.000); and most recent vaginal intercourse use birth control (r=.052, p=.044).

Other sexual risk behaviors were not statistically significant: age first time vaginal intercourse (r=-.047, p=.060); any vaginal intercourse partners have STD past 12 months (r=.023, p=.378); birth control at intercourse past 12 months (r=.027, p=.303); condom at vaginal intercourse past 12 months (r=.031, p=.232); and most recent vaginal intercourse use condom (r=.012, p=.656).

Is educational level related to self-esteem? Education level and self esteem have a statistically significant negative relationship (r= -.088, p= - .000). Those with a higher self esteem completed less education.

Limitations

A limitation of this study is that the sexual behavior questions only included vaginal intercourse and no other forms of sexual activity such as oral sex or anal sex. Another limitation is that the material in the questionnaire is sensitive so respondents may not have been completely honest while answering the questions, although to maintain privacy and confidentiality respondents answered via a private computer-assistive device. Another limitation is that this study was cross-sectional rather than longitudinal analysis. This only allowed showed one point in time and did not follow the sample over a longer period. Also, the study did not compare any differences based on race or ethnicity. It would have been helpful to see how race plays a role in the variables studies and if there are any major differences between groups.

Discussion

The results of this study have clinical and research implications. The results show that greater the incidence of binge drinking is correlated to more sexual risk behaviors. This study looked at a variety of sexual risk behaviors such as number of partners, partners with an STI, unprotected sex and age when first engaging in sexual intercourse. Previous studies have mostly

looked at one risk behavior opposed to multiple behaviors. These results show that education about binge drinking and its effect are necessary especially in this age group. Binge drinking can lead to a loss of inhibitions, making engaging in sexual risk behaviors more likely. Alcohol Myopia Theory (AMT) was originally presented in 1990 by Steele and Josephs and suggests that as a person consumes alcohol, his/her cognitive abilities to process and discriminate between stimuli or cues to behavior begin to decrease (Griffin, Umstattd, & Usdan, 2010). This cognitive impairment causes the person to focus on the most salient cues and ignore others, making them "myopic" or "nearsighted" (Griffin et al., 2010). When a person is faced with a decision of whether to perform a risky act, he/she processes 2 types of cues: impelling and inhibiting cues. Impelling cues are those that appeal to one's most immediate desires or impulses and inhibiting cues are those that help monitor impulses and uphold social mores or norms (Kaly et al.,2002). The true effects of alcohol myopia occur when a state of conflict between the inhibiting and impelling cues exists, which is known as inhibition response conflict. When an IRC exists, AMT assumes that alcohol use will induce "more extreme social behavior" (Kaly et al., 2002). Research also supports that a person focuses more on salient cues and often disregards inhibiting cues during alcohol consumption (Griffin et al., 2010).

Self-esteem has been shown in previous studies to be related to binge drinking. However, there has been varying results as to the relationship. Associations between low self-esteem and heavy drinking in college women have also been demonstrated in various studies (Benjamin & Wulfert, 2005). However, Neumann et al. (2009) found that higher self-esteem was associated with greater drinking frequency relative to lower self-esteem. In this study women with higher self-esteem showed a greater incidence of binge drinking. Women with higher self-esteem may be more confident and therefore, be more likely to go out and socialize. The mean age of the

sample is about 21, so this age group would be likely to attend to parties and go to bars and more likely to be in situations where binge drinking is acceptable This result indicates a need for further study on the relationship between self-esteem and relationship and how the two are correlated. However, we do know that the two are related so practitioners should work with young women so that they have a positive and accurate self appraisal of themselves.

In 2002, Kaly et al.completed an updated review of the research and literature on high-risk sexual behaviors and alcohol use within college student populations. Noting the paucity of theory-based research in the areas of alcohol use and sexual behaviors, Kaly Heesacker, & Frost (2002), focused their review on studies involving AMT, which was described as ". . . the single most important theory for understanding the association between alcohol use and risky sexual behavior . . .."(Kaly et al., 2002). The female students with low self-esteem in the negative mood setting were more likely to express intentions to have unprotected sex than did those in the positive mood setting. MacDonald, Fong, Zanna, & Martineau (2000)related these findings back to AMT, explaining that results of the study indicated that women with low self-esteem and negative attitudes toward self may find these feelings to be more salient when drinking alcohol. In an attempt to explain these negative salient feelings, MacDonald, Fong, Zanna, & Martineau (2000) stated that women with low self-esteem may become afraid of social rejection and respond in ways that they believe will result in social acceptance. Again further research should be done to look at the relationship between self-esteem and binge drinking. It would also be interesting to look at different age groups to see how their levels of self-esteem relate to drinking behaviors.

Sexually transmitted infections are a major health problem in our society especially among younger women. Therefore, it is important to continue to study sexual risk behaviors in

young women. These results add to previous studies done on the topic by looking at a psychological factor, self-esteem as well as binge drinking and sexual risk behaviors. The study as includes education level and how that relates to these variables. Fuller understanding of the relationships between binge drinking, self esteem, educational level and sexual risk behaviors will aid in the development and implementation of gender-specific interventions aimed at impacting sexual risk behavior among women.

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Table 1

Sample Demographics

N=2629 un-weighted

Variable	Percentage
Age	
Mean Age (SD) 21.71 (1.8)	
Range 18-27	
Ethnicity/Race	
Caucasian	58.3
Black	29.1
American Indian/Native American	7.6
Asian/Pacific Islander	5.1
Level of Education	
GED	6.8
High School graduate	83.3
Associate's Degree	8.8
Bachelor's Degree	12.7
Master's or Professional Degree	0.4
Currently attending school	39.3
Full time	78.6
Part time	21.4
High school	1.0
Two-year college	31.8
Four-year college	58.2
Graduate school	9.0

Table 1 Demographics Table

Table 2

Correlations between binge drinking and sexual risk behaviors

Sexual risk behaviors	# times have 4+ drinks on single occasion past 2 weeks
Age first time vaginal intercourse	-.047
# vaginal intercourse partners	.175**
# different vaginal intercourse partners past 12 months	.234**
Any vaginal intercourse partners have STD past 12 months	.030
Birth control at intercourse past 12 months	.027
Condom at vaginal intercourse past 12 months	.031
Most recent vaginal intercourse use birth control	.052*
Most recent vaginal intercourse use condom	.012
Risky sexual behaviors scale	.047

*Notes: ** Correlation is significant at the 0.01 level. * Correlation is significant at the 0.05 level.*

Table 2 Correlations between binge drinking and sexual risk behaviors

Table 3

Correlations between education level and sexual risk behaviors

Sexual risk behaviors	Highest education level
Age first time vaginal intercourse	.296**
# vaginal intercourse partners	-.050*
# different vaginal intercourse partners past 12 months	-.002
Any vaginal intercourse partners have STD past 12 months	-.023
Birth control at intercourse past 12 months	.255**
Condom at vaginal intercourse in past 12 months	0.75**
Most recent vaginal intercourse use birth control	.192**
Most recent vaginal intercourse use condom	.073**

*Note: ** Correlation is significant at the 0.01 level. * Correlation is significant at the 0.05 level.*

Table 3 Correlations between education level and sexual risk behaviors

Table 4

Correlations between sexual risks behaviors and self-esteem

Sexual risk behaviors	Self-esteem
Age first time vaginal intercourse	-.069**
# vaginal intercourse partners	.087**
# different vaginal intercourse partners past 12 months	.062**
Any vaginal intercourse partners have STD past 12 months	.027
Birth control at intercourse past 12 months	-.069**
Condom at vaginal intercourse past 12 months	-.079**
Most recent vaginal intercourse use birth control	-.081**
Most recent vaginal intercourse use condom	-.098**

Note: ** Correlation is significant at the 0.01 level. * Correlation is significant at the 0.05 level

Table 4

Correlations between sexual risks behaviors and self-esteem